STRATUS CONSULTING

Natural Resource Damages Associated with Aesthetic and Ecosystem Injuries to Oklahoma's Illinois River System and Tenkiller Lake

Expert Report for State of Oklahoma, in Case No. 05-CV-0329-GKF-SAJ, State of Oklahoma v. Tyson Foods, et al. (In the United States District Court for the Northern District of Oklahoma)

Volume I

Executive Summary

This document reports the results of a study commissioned by the State of Oklahoma to measure natural resource damages associated with excess phosphorus from poultry waste and other sources entering the Illinois River system and Tenkiller Lake (hereafter, the river and lake), based on injury studies developed by the State's injury experts. A team of internationally known experts in environmental economics, natural resource damage assessments, and survey methodology conducted the study over a more than two-year period. The study was undertaken within a framework of natural resource damage assessment (NRDA) as presented in the U.S. Department of the Interior's (DOI's) NRDA regulations.

Injuries to Oklahoma trust resources from this excess phosphorus have been documented in several reports by natural science experts. Natural resource damages are the monetary value placed on the changes resulting from injuries to Oklahoma trust resources of the river and lake.

In conducting the analysis reported here, the Team focused exclusively on damages from injuries that will result from past and current land applications of poultry waste and other sources. Furthermore, the Team considered only the aesthetic and ecosystem effects resulting from excess phosphorus. Negative aesthetic effects included algae-related reductions in water clarity and the presence of more algae on the bottom and along the edges of the river and lake than would otherwise have occurred. Excess phosphorus and algae have also affected, and will continue to affect, the fish and other elements of the ecosystem of the river and lake.

To estimate the monetary value of damages, the Team conducted a contingent valuation (CV) study. CV uses carefully crafted surveys to quantify economic values. Since 1963, there have been over 6,000 papers published on CV in the United States and other countries, a significant portion of which has been published in the peer reviewed economics literature. Statistical methods have been developed to estimate CV values, evaluate error bounds, and conduct sensitivity analyses. Based on the literature, guidance on conducting valid CV studies has been developed, including guidelines formulated by the NOAA Blue Ribbon Panel on Contingent Valuation. Results from CV studies have been used to inform many public decisions and to assess natural resource damages. CV is accepted in the DOI's regulations for conducting NRDAs.

The CV survey used in this study was designed and executed to meet the highest scientific standards, including the NOAA Panel's guidelines. A leading survey research firm used in-person interviews to collect the data. Analysis of the data, using well-accepted methods, tested and documented the validity of the results.

A conservative estimate of per household damages is $184.55. There are 1,352,878 households in the study area (63 Oklahoma counties included in the survey) based on the most recent estimates. Accordingly, a conservative estimate of the damages for the injuries to Oklahoma trust resources presented in the survey is $249,673,635 (1,352,878 multiplied by $184.55). The 95% confidence interval for the aggregate estimate is $224,198,942 to $275,148,328. This estimate of damages does not include additional categories of damages such as those resulting from injuries to groundwater or human health, or any damages for the years prior to this study.